PATENT ABSTRACTS OF JAPAN

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(54) BLANK PAGE DETECTING AND DISTINGUISHING METHOD, BLANK PAGE DETECTING AND DISTINGUISHING SYSTEM, PRINTING SYSTEM USING IT, FACSIMILE APPARATUS USING IT, AND COMPUTER-PROGRAMMED PRODUCT USING IT

(57)Abstract:

PURPOSE: To detect a reproduction job positioned improperly in an automatic paper feed apparatus and at the same time, cancel the reproduction job, and normally print out blank paper inserted in the reproduction job without stopping an apparatus.

CONSTITUTION: The system involves a step to judge the start of the job, a step to obtain page information contained in the job, a step to judge whether the page which the page information indicates is a blank page or not, a step to judge whether the job is already started or not when the page is judged to be not a blank page or a step to increase a blank page counter when the page is judged as a blank page, a step to compare the blank page counter with a blank page threshold, and a step to display that an error occurs in the case where it is judged that the blank page counter exceeds the blank page threshold and that the job is not yet started.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] This invention sets to image-formation equipments, such as an ARONAGU copying machine and a digital copier, relates to the ******-JI detection / discernment approach and blank paper page detection / discernment system which detects and identifies the blank paper page of a manuscript, and relates to the ******-JI detection / discernment approach and the blank paper page detection / discernment system which detect and identify alternatively ******-JI of the first sheet within an image-formation job, and ******-JI after it within an image-formation job especially.
[0002]
[Description of the Prior Art] **-JI which copies by originally a copy machine being an analog system is illuminated by the light source, and makes photo conductor drum lifting produce a latent image. Then, a toner is applied to a drum, it is drawn by the toner to a latent image, and it adheres. White copy paper passes the above-mentioned photo conductor drum, and the latent image of drum lifting is imprinted by copy paper. Melting fixing of the latent image of the copy paper is eternally carried out by elevated-temperature FUYUZA on copy paper after that. It is because the digital image of **-JI is not made that this kind of copy machine is an analog type.
[0003] By the advance of a computer and a scanner, the digital copy machine which scans **-JI using CCD in the memory of a digital format appears, and modification of **-JI and reprint came to be performed more simply. When the manuscript was saved in memory, the any number of sets same manuscript could be easily made from the digital copy machine all the time again. Recently, an industry side is beginning to include other functions in these copy machines. For example, it is also possible to build facsimile into a digital copy machine. And if a digital copy machine is connected to a computer network, the duty as a printer can also be achieved. All of these functions use the same scanner unit mounted in the digital copy machine, a control unit, and a printer unit.
[0004] All of these equipments known also as image formation equipment have an automatic manuscript feed gear (automatic manuscript feeder) for sending a playback job to this equipment. And in a multifunctional digital machine, a facsimile job is also sendable into equipment using an automatic manuscript feed gear.
[0005]
[Problem(s) to be Solved by the Invention] However, the analog and digital image formation equipment of the above-mentioned former, and digital multifunctional image formation equipment are holding one problem which was not solved in completeness in all models until now.
[0006] Generally, image formation equipment cannot detect it, when a user puts a form on an automatic manuscript feed gear unsuitably. the case where image formation equipment has the automatic manuscript feed gear if it says in a typical example -- a manuscript side -- facing up -- placing (face-up installation) -- a manuscript side -- facing down -- placing (face down installation) -- it is decided. Supposing a user puts a manuscript on a face down type automatic manuscript feed gear by face up, from image formation equipment, the copy of a blank paper will come out and it will not be helpful to a

user.

[0007] ******-JI in a playback job is detected, there are some kinds of systems which make regeneration stop, and when ******-JI is detected, a playback job is made to stop in these systems. However, although a user may place ******-JI into a playback job intentionally in order to divide two or more manuscripts, in the conventional ******-JI detection system, distinction with ******-JI placed intentionally and ******-JI which occurs by the playback job unsuitably put on the automatic manuscript feed gear cannot be performed. Furthermore, in many cases, in these systems, the required data for judging the existence of ******-JI must be created using a separate sensor.

[0008] This invention is made in view of the above, and the playback job (blank paper page of two or more beginnings in a playback job) unsuitably put on the automatic manuscript feed gear is detected, and while it is possible to stop it moreover, it aims at enabling it to usually print out in a passage about ******-JI which is contained in the middle of a playback job, without stopping a machine.

[0009] Moreover, let it be the other purposes that this invention enables it to use the digital signal currently used with digital image formation equipment in order to be made in view of the above and to detect whether it is original ******-JI in a playback job.

[0010] Moreover, it sets it as the other purposes that this invention enables application to an analog copying machine by being made in view of the above and equipping an automatic manuscript feed gear with the sensor which creates the digital signal used for detection and discernment of various kinds of ******-JI in a playback job.

[0011] Furthermore, this invention aims at offering the image formation equipment which has the scanner, the control device, plotting facilities, and detection equipment for identifying and detecting ******-JI of the first sheet and ******-JI after it in a playback job.

[0012]

[Means for Solving the Problem] In order to attain the above-mentioned purpose, the ******-JI detection / discernment approach concerning claim 1 In the ******-JI detection / discernment approach of detecting and identifying the blank paper page of the manuscript in image formation equipments, such as an ARONAGU copying machine and a digital copier The step which judges the beginning of a job, and the step which acquires the **-JI information included in said job, The step **-JI shown using said **-JI information judges it to be whether it is ******-JI, The step which judges whether said job has started when it is judged that said **-JI is not ******-JI, The step which will increment a ******-JI counter if it is judged that said **-JI is ******-JI, A step [a ******-JI threshold / counter / said / ******-JI], When it is judged that said ******-JI counter is over said ******-JI threshold by said comparison step and it is judged that said job is not started, it has the step which indicates that the error occurred.

[0013] Moreover, in claim 1, the ******-JI detection / discernment approach concerning claim 2 has the step which makes an automatic manuscript feed gear stop, when said ******-JI counter is further judged to be over a ******-JI threshold by said comparison step.

[0014] Moreover, in claim 1, the ******-JI detection / discernment approach concerning claim 3 has the step which makes a printer stop, when said ******-JI counter is further judged to be over a ******-JI threshold by said comparison step.

[0015] Moreover, the ******-JI detection / discernment approach concerning claim 4 contains the step to which the step which acquires said **-JI information acquires **-JI information from a computer in claim 1.

[0016] Moreover, in claim 1, the ******-JI detection / discernment approach concerning claim 5 contains the step which acquires **-JI information, when the step which acquires said **-JI information scans **-JI.

[0017] Moreover, the ******-JI detection / discernment approach concerning claim 6 has further the step which inputs said ******-JI threshold by the user in claim 1.

[0018] Moreover, blank paper page detection / discernment system concerning claim 7 In ******-JI detection / discernment system which detects and identifies the blank paper page of the manuscript in image formation equipments, such as an ARONAGU copying machine and a digital copier A means to

judge the beginning of a job, and a means to acquire the **-JI information included in said job, A means by which **-JI shown using said **-JI information judges ******-JI or a banner page, A means to generate an OVERRIDE signal if said banner page is detected, A means to increment a ******-JI counter if it is judged that said **-JI is ******-JI, When a means to compare said ******-JI counter with a ******-JI threshold, and ******-JI are detected and an OVERRIDE signal does not occur, it has a means to indicate that the error occurred.

[0019] Moreover, in claim 7, blank paper page detection / discernment system concerning claim 8 is equipped with a means to make an automatic manuscript feed gear stop, when it is judged further that said ******-JI counter is over said ******-JI threshold with said comparison means.

[0020] Moreover, in claim 7, blank paper page detection / discernment system concerning claim 9 is equipped with a means to make a printer stop, when it is judged further that said ******-JI counter is over said ******-JI threshold with said comparison means.

[0021] Moreover, blank paper page detection / discernment system concerning claim 10 includes a means by which a means to acquire said **-JI information acquires **-JI information from a computer, in claim 7.

[0022] Moreover, in claim 7, blank paper page detection / discernment system concerning claim 11 includes a means to acquire **-JI information, when a means to acquire said **-JI information scans **-JI.

[0023] Moreover, blank paper page detection / discernment system concerning claim 12 is further equipped with a means to input a ******-JI threshold by the user, in claim 7.

[0024] Moreover, blank paper page detection / discernment system concerning claim 13 In blank paper page detection / discernment system which detects and identifies the blank paper page of the manuscript in image formation equipments, such as an ARONAGU copying machine and a digital copier A means to judge the beginning of a job, and a means to acquire the **-JI information included in a job, A means by which **-JI shown using said **-JI information judges ******-JI or a banner page, If said banner page is detected, when a means to generate an OVERRIDE signal, and ******-JI will be detected and an OVERRIDE signal will not occur, it has a means to indicate that the error occurred.

[0025] Moreover, the print system concerning claim 14 A means to judge it to be the information input terminal which receives the **-JI information on a print job whether said **-JI information contains ******-JI which plurality followed at the time of the start of said print job, At the time of the printer which prints said **-JI information, and the start of said print job, with said decision means When said **-JI information is judged that ******-JI which plurality followed is included After it makes said printer stop printing of **-JI information and said print job starts, with said decision means When said page information is judged that two or more ******-JI is included, it has the controller operated without making said printer stop.

[0026] Moreover, in claim 14, further, it connects with said information input terminal, and the print system concerning claim 15 is equipped with the scanner which creates said **-JI information.

[0027] Moreover, in claim 14, further, it connects with said information input terminal, and the print system concerning claim 16 is equipped with the computer which creates said **-JI information.

[0028] Moreover, the print system concerning claim 17 A means by which said decision means judges the beginning of said print job in claim 14, A means by which **-JI shown using said **-JI information judges whether it is ******-JI, A means to judge what said print job started when it is judged that said **-JI is not a blank paper, A means to increment a ******-JI counter when it is judged that said **-JI is ******-JI, With a means to compare said ******-JI counter with a ******-JI threshold, and said comparison means When it is judged that said ******-JI counter is over said ******-JI threshold and it is judged that said print job has not started, it has a means to indicate that the error occurred.

[0029] Moreover, the print system concerning claim 18 is equipped with the photo conductor which receives the light from said laser which said printer reflected in laser, the polygon mirror, and said polygon mirror in claim 14.

[0030] Moreover, the facsimile apparatus concerning claim 19 A means to judge it to be the scanner which creates **-JI information from a scanning job whether said **-JI information contains ******-JI

which plurality followed at the time of the start of said scanning job, At the time of the transmitter which transmits said **-JI information, and the start of said scanning job, with said decision means When it is judged that ******-JI by which plurality followed said **-JI information is contained After it makes said transmitter stop transmission of **-JI information and said scanning job starts, with said decision means When ******-JI by which plurality followed said **-JI information is contained, it has the controller which operates without making said transmitter stop.

[0031] Moreover, the facsimile apparatus concerning claim 20 A means by which said decision means judges the beginning of said scanning job in claim 19, A means by which **-JI shown using said **-JI information judges whether it is ******-JI, A means to judge what said scanning job started when it is judged that said **-JI is not a blank paper, A means to increment a ******-JI counter when it is judged that said **-JI is ******-JI, Said ******-JI counter with the means in comparison with a ******-JI threshold, and said comparison means When it is judged that said ******-JI counter is over said ******-JI threshold and it is judged that said scanning job has not started, it has a means to indicate that the error occurred.

[0032] Moreover, the computer program product concerning claim 21 In the computer program product which has equipment with which computer program logic is recorded, and which can be computer read A means to judge the beginning of said job, and a means by which **-JI shown using said **-JI information judges whether it is ******-JI, A means to judge that said job has started when it is judged that said **-JI is not ******-JI, A means to increment a ******-JI counter if it is judged that said **-JI is ******-JI, Said ******-JI counter with the means in comparison with a ******-JI threshold, and said comparison means A means to judge that ******-JI which plurality followed exists when it is judged that said ******-JI counter is over said ******-JI threshold and it is judged that said job has not started, It judges whether the **-JI information on a job contains ******-JI which plurality followed at the time of the start of a preparation and said job.

[0033] In addition, the above-mentioned blank paper page detection / discernment system is mounted in a scanner or plotting facilities. Moreover, this system possesses the ******-JI comparator connected to the ******-JI counter with which the ******-JI control device, the image processing system connected to said ******-JI control device, and said image processing system were equipped and said ******-JI counter, and said ******-JI control device. This system may have the ******-JI threshold register which can be adjusted to a user.

[0034] Moreover, the method (the ******-JI detection / discernment approach) of identifying ******-JI of the first sheet and ******-JI after it in a playback job is constituted by the step which compares with its digital one and **-JI data, and sunspot threshold the step which generates a detecting signal alternatively, and the step which **-JI is scanned [step] and generates digital one and **-JI data. And if the above-mentioned sunspot threshold is not over the above-mentioned data, a ******-JI counter is incremented and this ******-JI counter is compared with a ******-JI threshold. Finally, a ******-JI counter exceeds a ******-JI threshold, and if the detecting signal is active, a playback job is stopped at the time.

[0035]

[Embodiment of the Invention] Hereafter, the gestalt of operation of this invention is explained to a detail with reference to an attached drawing.

[0036] Drawing 1 is the schematic diagram of the digital copier in which the fundamental component part of a digital copier is shown. Said digital copier is multifunctional equipment 10 which performs various functions, such as a copy function, a print function, and a facsimile function. However, this invention often functions to the same extent also as a digital copier. In order to make it intelligible, multifunctional equipment 10 is explained below.

[0037] Multifunctional equipment 10 contains housing 12. In order to send a manuscript into multifunctional equipment 10, the manuscript feeder 14 and the automatic manuscript conveyance terminal 16 are mounted. This manuscript feeder 14 and the automatic manuscript conveyance terminal 16 are equivalent to an automatic manuscript feed gear. The manuscript feeder 14 holds the manuscript with which a scan and a print are performed. The automatic manuscript conveyance terminal 16 conveys

a manuscript to multifunctional equipment 10 through a scanning device. The form tray 18 supplies the form for copying an image. The output bottle 20 of a pair performs the output of a printer or a copy job.

[0038] The above-mentioned multifunctional equipment 10 known also as image formation equipment is controlled by the control panel 22 which has a start pushbutton 23. In the copy or the playback job, the liquid crystal display (LCD) 24 is mounted so that interactive actuation with a user may be possible. A user can control the function of the above-mentioned equipment by combination of a control panel 22 and LCD24.

[0039] For example, when starting a new playback job, a user pushes a start pushbutton 23. In the case of multifunctional equipment 10, functions, such as a copy function, a print function, or a facsimile transmitting function, are included. In order to perform a facsimile transmitting function, the telephone input unit 26 may be equipped. In order to perform a print function, the host interface 28 which connects multifunctional equipment 10 to a computer network is mounted. Multifunctional equipment 10 is operated like the printer linked to a computer network. There may not be the telephone input unit 26 and the host interface 28, in order that both may operate this invention.

[0040] In order to image a manuscript, a manuscript is sent out from the manuscript feeder 14 with the automatic manuscript conveyance terminal 16. The light source 30 reflects a light, when a manuscript is conveyed with the automatic manuscript conveyance terminal 16, and it irradiates light at the mirror assembly 31 which illuminates the manuscript. The image generated from the light which hit the manuscript is put in by the charge-coupled device (CCD) 32. CCD32 electronizes the optical description of ******-JI (photo electric conversion). Next, if it will be in the condition that the above-mentioned image can be printed, another system of multifunctional equipment 10 will print the manuscript.

[0041] In order to print a manuscript, a photo conductor 34, laser 36, the polygon mirror 38, and FUYUZA 39 are mounted. In actuation, laser 36 is controlled by multifunctional equipment 10, and creates the suitable image of a manuscript.

[0042] Next, it is reflected by the revolving polygon mirror 38 and laser light forms a latent image on a photo conductor 34. After a toner is applied to a photo conductor 34, a form is sent out through a photo conductor 34 from the form tray 18, and the image on a photo conductor 34 is imprinted by the form. The output bottle 20 HE output of the form in which the image carried out melting fixing on the form by FUYUZA 39, and the image finally carried out melting fixing is carried out.

[0043] The outline block diagram of the system block in the image formation equipment containing the system bus and the electronic component 50 of image formation equipment is shown in drawing 2 so that this invention may be understood enough. The system bus 52 is connected with all the components of image formation equipment. A central processing unit (CPU) 54 performs various tasks, acting as the monitor of the condition of equipment. The bank of a dynamic RAM (DRAM) 56 and the bank of ROM (EEPROM)58 it can electric elimination good self-advertisement be [ROM] crowded are mounted suitably.

[0044] The read-only memory (ROM) module 60 memorizes initial value, a default, and a firmware. The print instruction for operating the command for a print good ["PCL5" of Hewlett Packard and / of Adobe / "good"] and known is also included in the firmware.

[0045] The 1st interface controller 62 is combined with a control panel 22, and the user enables it to control actuation of multifunctional equipment 10. The 2nd interface controller 64 is combined suitable for a host computer through the host interface 28. The manuscript from the computer network printed with multifunctional equipment 10 goes into the above-mentioned equipment through the 2nd interface controller 64.

[0046] The 3rd interface controller 66 is incorporated in DRAM68, and is combined with FAX / telephone processor 70. Above-mentioned FAX / telephone processor 70 switch a system to the suitable mode automatically by having suitably the module which identifies receipt information as voice or facsimile data, and sending to CPU54. The ANSA ring terminal 72 which sends it to FAX / telephone processor 70 corresponding to the facsimile document (receipt information) and telephone which received is combined with FAX / telephone processor 70. In the case of multifunctional equipment with a facsimile function, image formation equipment is combined also with a portable telephone or the

telephone line (not shown).

[0047] The Direct-Memory-Access controller (DMA controller) 74 is also mounted. DMA controller 74 controls access to the memory of image formation equipment.

[0048] The printer interface 76 is connected with the system bus 52, and has led also to the configuration for a print of image formation equipments, such as a photo conductor 34, laser 36, and the polygon mirror 38, further. A printer interface 76 controls the information flow which flows to the print part of image formation equipment to said equipment, and controls to obtain a desired image by it.

[0049] The scanner interface 78 has led to CCD32, and the scanned digital image is obtained from CCD32. The above-mentioned scanner interface 78 is connected also to a system bus 52. The system controller 80 is connected to the scanner interface 78 and a printer interface 76 through a system bus 52 and a bus 82. By connection of two buses, the input-output relevant to each function is enabled so that a copy and other functions can perform to coincidence. In a copy, it is also possible for a bus 84 to establish another interface between the scanner interface 78 and a printer interface 76, and to move the image data between two interface devices to it directly.

[0050] When scanning data are sent to a printer interface 76, a logic unit (ALU) 86 is used in order to merge the data from the scanner interface 78, and the data from other information sources based on an "on-the-fly method." And the merge data from a scanner can be sent to DRAM56, and are merged with other image data which is saved temporarily there or has already been saved at DRAM56.

[0051] The interface 88 for stores is connected with the store 90 of the exteriors, such as a hard disk, an optical disk, and/or a floppy disk. Storage 90 has memorized a series of instructions used according to this invention. ROM60 may be made to memorize these instructions depending on the case. The above-mentioned store 90 can save the digital image of the above-mentioned job similarly, by the time it is printed, after a playback job is scanned.

[0052] Drawing 3 and drawing 4 express two kinds of automatic manuscript feed gears. Drawing 3 is the schematic diagram of the automatic manuscript feed gear of manuscript **** delivery (face down type). Drawing 4 is the schematic diagram of the automatic manuscript feed gear of manuscript side table delivery (face-up type). Although the image formation equipment shown in drawing 3 and drawing 4 is the same as image formation equipment 10, it has a different automatic manuscript feed gear. Moreover, each above-mentioned equipment 10 mounts the sorter 100. The flesh-side delivery automatic manuscript feed gear 102 is shown in drawing 3 . Since the form track 103 is straight like illustration, the flesh-side delivery automatic manuscript feed gear 102 is high-speed, but since it is not built, a large tooth space is needed on image formation equipment 10. Although the space to occupy has much few front delivery automatic manuscript feed gears 104 which are contrary to it and are shown in drawing 4 , speed is slow and the gestalt of the form track 105 becomes complicated all the time. Even if the problem is different image formation equipment, it is having equipped the automatic manuscript feed gear of one of the above, respectively. That is, when **-JI of this manuscript is put on both sides, in order that image formation equipment may copy **-JI of a blank paper, when a user puts a manuscript on a flesh-side delivery automatic manuscript feed gear upward, a problem will occur. Similarly, when a manuscript is put on a front delivery automatic manuscript feed gear at the flesh-side sense, useless ******-JI will be printed on a user.

[0053] In order to solve this problem, a copy machine must be able to detect ******-JI within a copy job. Furthermore, in the system and approach, what was unsuitably put on the automatic manuscript feed gear, and ******-JI intentionally placed to a copy job in order to divide a manuscript must be discriminable.

[0054] With the gestalt of operation of this invention explained below, the data which scanned and obtained **-JI are altogether changed into the signal which displays the physical characteristic of scanned **-JI. It is reflected by scanned **-JI and the light from the light source is detected by CCD for changing the optical description of the **-JI into an electric display. An electric display is memorized, and it is processed so that this invention may explain below further. Moreover, the digital data which displays the optical description of **-JI can be created by conventional computer which executes programs, such as a WORD processing program, a data **-SU program, a spreadsheet program, and an

accounting program.

[0055] <u>Drawing 5</u> is the outline block diagram of the gestalt of operation of the ******-JI detection system (******-JI detection / discernment system) 118 of this invention with which the printer interface 76 was equipped. Since a scanner interface (not shown) is similarly equipped with the ******-JI detection system 118, this explanatory view has shown the gestalt of this operation briefly. Various kinds of control signals in image formation equipment (for example, the FGATE signal 120, the LSYNC signal 122, the LGATE signal 124, etc.) are used for the above-mentioned detection system 118 by whether the printer interface 76 is equipped with the ******-JI detection system 118, or the scanner interface is equipped.

[0056] Only the FGATE signal 120 is used in order to actually control a detection system 118. The LSYNC signal 122 and the LGATE signal 124 were only shown explanatorily. Moreover, the IMAGEDATA signal 126 is sent into the above-mentioned detection system 118. This IMAGEDATA signal 126 includes the electrical signal which displays the optical description of **-JI used with a detection system 118, and detects and identifies ******-JI in a playback job. Although the extension comparator and the counter control signal are shown in <u>drawing 7</u> , it does not go into <u>drawing 5</u> . If it is this contractor, in order to clarify the function of hardware circuitry shown by <u>drawing 7</u> , it should turn out that the above-mentioned comparator and the counter control signal are shown.

[0057] <u>Drawing 6</u> is the timing chart showing the FGATE signal 120, the LSYNC signal 122, and the LGATE signal 124. The FGATE signal 120 is changed into "high" from "low" from "0" to that is, "1", is the last of **-JI and is returned to the "low" signal (for example, "0") at the beginning of **-JI.

[0058] The LSYNC signal 122 emits a pulse first whose **-JI is new Rhine respectively, and starts the LGATE signal 124. The LGATE signal 124 is set to "low" (that is, "0") to the beginning of Rhine, and becomes "high" ("1") at the last in each Rhine. This control signal directs the time of effective **-JI information data existing on the IMAGEDATA signal 126 in other signals. The FGATE signal 120 is used in order to control a detection system 118.

[0059] <u>Drawing 7</u> is [about the system and approach for carrying out discernment from ******-JI of the first sheet, and ******-JI after it within the playback job shown by <u>drawing 5</u> rather than] a detailed block diagram. With the gestalt of this operation, a printer interface (not shown) or the scanner interface 78 may be equipped with a detection system 118. In order to clarify, the detection system 118 is shown in the scanner interface 78.

[0060] CCD32 (refer to <u>drawing 1</u>) sends the IMAGEDATA signal 126 into the scanner interface 78. Within the scanner interface 78, the IMAGEDATA signal 126 is sent to a controller 140. A controller 140 is based on the OVERRIDE signal 141, and starts / stops a detection system 118. This OVERRIDE signal 141 is explained in detail by the following.

[0061] When the above-mentioned detection system 118 stops with the OVERRIDE signal 141, as for the IMAGEDATA signal 126, a detection system 118 is not passed at all. So, a controller 10 is the switch which can turn a detection system 118 on and off.

[0062] If a detection system 118 is active (that is, low-OVERRIDE signal 141), the IMAGEDATA signal 126 will be sent to the sunspot comparator 142 started by the DOTCLOCK signal 144. This DOTCLOCK signal 144 is a control signal of the image formation equipment which emits a pulse for every dot to the IMAGEDATA signal 126.

[0063] You may be the programmed microprocessor although the comparator in the above-mentioned system is a suitable hardware comparator containing the sunspot comparator 142. The sunspot comparator 142 compares each dot within the IMAGEDATA signal 126 with the sunspot threshold signal included in the sunspot threshold memory 146. The sunspot comparator 142 judges the existence of a sunspot. It generates with image formation equipment at the time of starting, and a sunspot threshold signal changes with the temperature of a scanning lamp, and is memorized by the above-mentioned sunspot threshold memory 146.

[0064] The sunspot comparator's 142 detection of a sunspot carries out the increment of the sunspot counter 148. the sunspot number of **-JI of specification [the sunspot counter 148] -- integrating -- the FGATE signal 120 -- "low" -- becoming (the last of **-JI being expressed) -- a **-JI signal is generated,

and a counter is reset so that the sunspot number of following **-JI can be counted.

[0065] The output of the sunspot counter 148 is sent to the banner page comparator 150 which compares the **-JI signal from a sunspot counter with the banner page threshold signal memorized by the banner page threshold memory 152. The trigger of the banner page comparator 150 is carried out by the FGATE signal 120, and it is temporarily stopped with the NEWPAGE signal 154.

[0066] Usually, the NEWPAGE signal 154 is in the condition of "high", and keeps the banner page comparator 150 active. However, if **-JI which exists for the job is repeatedly scanned when a two or more sets job is reproduced, the NEWPAGE signal 154 will be set to "low", and it will be prevented so that the banner page comparator 150 may not compare the same **-JI with a banner page threshold 2 times or more. Therefore, a detection system 118 can judge correctly the actual number of ******-JI in a playback job also by the case of two or more sets by which two or more **-JI is re-scanned for every set.

[0067] The NEWPAGE signal 154 is not needed with the image formation equipment of a certain kind which circulates through all manuscripts repeatedly in order to copy two or more sets. And since facsimile apparatus does not draw up a what set manuscript, the NEWPAGE signal 154 is not needed for facsimile apparatus.

[0068] It generates with image formation equipment at the time of starting, and a banner page threshold signal is memorized by the banner page threshold memory 152. When the **-JI signal from the sunspot counter 148 has exceeded the banner page threshold signal, the OVERRIDE signal 141 is always set to "1" so that a detection system 118 may be suspended, until a playback job newly starts [a controller 140] (that is, when ******-JI is not detected).

[0069] When a banner page threshold does not exceed a **-JI signal, a ******-JI signal is sent to ******-JIKAUNTA 156 (that is, when ******-JI is detected). ******-JIKAUNTA 156 is reset by the beginning with the JOBSTART signal 158 for every new playback job.

[0070] When each ******-JI is detected by the banner page comparator 150, the increment of ******-JIKAUNTA 156 is carried out. The counter signal of ******-JIKAUNTA 156 is sent to the ******-JI comparator 160. The ******-JI threshold signal from the ******-JI threshold memory 162 is similarly sent to the ******-JI comparator 160.

[0071] Although I can also have a serviceman set the ******-JI threshold memory 162, a user can also adjust by himself. It can also be adjusted although it is that the ******-JI threshold memory 162 is preferably set by 2 **-JI. For example, if the ******-JI threshold memory value is set to 2, before a playback job stops, ******-JI will be printed to 2 **-JI. The ******-JI comparator 160 judges whether the ******-JIKAUNTA signal has exceeded the ******-JI threshold signal. If ******-JIKAUNTA has exceeded the ******-JI threshold, the ******-JI comparator 160 will make CPU54 suspend delivery and image formation equipment for a stop signal. On the other hand, when ******-JIKAUNTA does not exceed ******-JI threshold level, a signal is not sent to CPU54 but image formation equipment continues actuation.

[0072] A controller 140 controls a detection system 118 working, and enables discernment from ******-JI of the first sheet of a playback job, and ******-JI without the need of stopping the job after it. In order to identify ******-JI of the first sheet, and ******-JI which should carry out a copy job, a controller 140 uses the OVERRIDE signal 141. The OVERRIDE signal 141 is set to "low (0)" whenever a new print job comes into a detection system 118.

[0073] The banner page comparator 150 always generates the high-OVERRIDE signal 141, when ******-JI is not detected. Once the OVERRIDE signal 141 becomes active, a detection system 118 will prevent it so that ******-JI may not be detected any more, until a new playback job starts a controller 140. Therefore, a detection system 118 will be suspended by the controller 140, once it becomes active at the beginning of each print job and an image and **-JI are scanned. That is, the OVERRIDE signal 141 is low, and a playback job will be stopped only when ******-JIKAUNTA exceeds a ******-JI threshold.

[0074] By this system, the above-mentioned image formation equipment becomes discriminable from the blank paper copy and **-JI of the first sheet, and ******-JI in the playback job which does not make

a playback job stop. Therefore, ******-JI of the first sheet which shows that the job was always laid in the automatic manuscript feed gear in the unsuitable condition will be discriminated from ******-JI which may be contained in the playback job. ******-JI in a playback job may be placed in order to consider as ******-JI or to reproduce correctly the job which has single **-JI and ******-JI, such as a book.

[0075] Drawing 8 is the flow chart which showed each step performed by the system of drawing 7 .

[0076] The above-mentioned approach starts at step 180.

[0077] The above-mentioned system starts at step 182 (that is, the OVERRIDE signal 141 is reset and ******-JIKAUNTA is returned to zero).

[0078] It judges whether it is the last of a job at step 184. If it is the last of a job, a system will return to step 182. When the last of a job is not reached yet, step 186 is performed, and new **-JI is scanned and printed on the scanning interface 78.

[0079] If **-JI is scanned at step 186, it will judge at step 188 whether an OVERRIDE signal is active. If the OVERRIDE signal is active, a system will return to step 184.

[0080] If an OVERRIDE signal is not active, scanned **-JIDETA which entered from the scanner will be analyzed, and it will be compared with a banner page threshold by step 190, and will judge whether ******-JI is detected or not.

[0081] If scanned **-JI has exceeded the banner page threshold (that is, a blank paper banner page is not detected), an OVERRIDE signal will become active at step 192, and control will return to step 184.

[0082] When scanned **-JI does not exceed a banner page threshold (that is, ******-JI is detected), control progresses to step 194 and the one increment of ******-JIKAUNTA is carried out there.

[0083] Next, it is judged at step 196 whether ******-JIKAUNTA exceeds a ******-JI threshold. If ******-JIKAUNTA does not exceed a ******-JI threshold, control will return to step 184. Moreover, when ******-JIKAUNTA exceeds a ******-JI threshold by one side (i.e., when an automatic manuscript feed gear performs a playback job on the contrary), a job is stopped at step 198.

[0084] Next, a form track is cleared at step 200. Finally the above-mentioned approach is ended at step 202.

[0085] In order to make a job stop and to clear a form track so that it may understand now, an OVERRIDE signal is inactive and ******-JIKAUNTA must be over the ******-JI threshold. The system and approach of this invention that this identifies ******-JI of the first sheet of a playback job and ******-JI which must not make the playback job after it stop become possible.

[0086] Drawing 9 is the schematic diagram of the analog copy machine which can use the system and approach of this invention, in order to identify ******-JI of the first sheet of a playback job, and ******-JI of the playback job after it. Drawing shows the analog copy machine 220 containing housing 222. Most components of an analog copy machine are the same as that of the image formation equipment 10 of drawing 1 . Therefore, the same sign is attached to the same part. For example, the same manuscript feeder 14, the automatic manuscript transfer terminal 16, the form tray 18, the output tray 20, a control panel 22, LCD24, and FUYUZA 39 are used. Furthermore, the light source 30 and the mirror assembly 31 are used in order to image the manuscript sent to an analog copy machine. However, in the analog copy machine 220, imaging of the **-JI image is directly carried out to a photo conductor 34.

[0087] In this approach, the image of the form on an analog copy machine is never changed into the electrical signal which displays the optical description of an image. Therefore, in order to make the most of the system and approach of this invention, a picture signal must be created by somewhere. The sensor 224 is mounted in order to do so. This sensor has the desirable contact mold sensor which makes the image of the original manuscript, when a manuscript passes along a sensor. The output of a sensor 224 is sent to the detection system (******-JI detection / discernment system of this invention) 226 which functions as the detection system of others which were indicated with the gestalt of the aforementioned operation similarly.

[0088] Thus, the system and approach of this invention of identifying ******-JI of the first sheet and ******-JI after it can be built into the analog copy machine 220, without changing the system.

[0089] The system and approach of this invention can be used also for the conventional facsimile, in order to set to a facsimile job and to detect and identify ******-JI of the first sheet, and other ******-JI. The hardware described above like the above mentioned step is used for the **-JI analysis system and approach of facsimile. Therefore, the explanation about hardware and a step is omitted here.

[0090] Although this invention has been explained using an OVERRIDE signal, the increment of the OVERRIDE signal may be carried out as a register and change of computer memory. For example, instead of having the dedicated line which performs an OVERRIDE signal, it may judge whether it is the beginning of a job a microprocessor, memory, and besides it, or this invention may be carried out using the circuit which checks the memory location for judging whether **-JI of a job with information is already processed. In this case, after **-JI with information is detected, the memory location with the information of the beginning of a job changes to display that the job started.

[0091] Probably, this invention will be clear for this contractor conveniently detailed to computer technology, since it can be performed again using the conventional general purpose digital computer programmed by instruction of this specification. the programmer in which the suitable software code became skillful based on instruction of this description -- creation -- possible -- ** also with that clear to this contractor detailed on a FUTOUEA technique -- such -- a wax.

[0092] This invention can be carried out again creation of a predetermined integrated circuit, or by connecting mutually in the suitable network of the conventional components circuit, and, probably, this [its] will also already be clear to this contractor.

[0093] This invention is a storage including the instruction for the computer programs for performing processing [in / including a computer program product / in this product / this invention]. Although this storage includes any gestalt of the medium object which was suitable in order to hold a floppy disk, an optical disk, CD-ROM, a magneto-optic disk, ROM, RAM, EPROM and EEPROM, the MAG, an optical card, or an electronic instruction, it is not limited to that range.

[0094] Although explained referring to the gestalt of the best concrete operation as mentioned above, unless it deviates from the pneuma of this invention, and a claim, if various kinds of modification is possible and it is equivalent in each component, this contractor will just be going to get to know a replaceable thing.

[0095]

[Effect of the Invention] As explained above, the ******-JI detection / discernment approach (claim 1) of this invention In the ******-JI detection / discernment approach of detecting and identifying the blank paper page of the manuscript in image formation equipments, such as an ARONAGU copying machine and a digital copier The step which judges the beginning of a job, and the step which acquires the **-JI information included in said job, The step **-JI shown using said **-JI information judges it to be whether it is ******-JI, The step which judges whether said job has started when it is judged that said **-JI is not ******-JI, The step which will increment a ******-JI counter if it is judged that said **-JI is ******-JI, A step [a ******-JI threshold / counter / said / ******-JI], The step which indicates that the error occurred when it is judged that said ******-JI counter is over said ******-JI threshold by said comparison step and it is judged that said job is not started, Since it has, while it is possible to detect the playback job (blank paper page of two or more beginnings which can be set to a playback job) unsuitably put on the automatic manuscript feed gear, and to stop it moreover, about ******-JI which is contained in the middle of a playback job a machine It can usually print out in a passage, without stopping.

[0096] Moreover, when image formation equipment is digital image formation equipment, in order to detect whether it is original ******-JI in a job, the digital signal currently used with digital image formation equipment can be used.

[0097] Furthermore, it is easily applicable to an analog copying machine by equipping an automatic manuscript feed gear with the sensor which creates the digital signal used for detection and discernment of various kinds of ******-JI in a playback job.

[0098] Moreover, the ******-JI detection / discernment approach (claim 2) of this invention Since it has the step which makes an automatic manuscript feed gear stop when it is further judged in claim 1 that

said ******-JI counter is over a ******-JI threshold by said comparison step, The playback job (blank paper page of two or more beginnings which can be set to a playback job) unsuitably put on the automatic manuscript feed gear can be detected, and it can be stopped automatically.

[0099] Moreover, the ******-JI detection / discernment approach (claim 3) of this invention Since it has the step which makes a printer stop when it is further judged in claim 1 that said ******-JI counter is over a ******-JI threshold by said comparison step, The playback job (blank paper page of two or more beginnings which can be set to a playback job) unsuitably put on the automatic manuscript feed gear can be detected, and the print of the page which corresponds automatically can be stopped.

[0100] Moreover, the ******-JI detection / discernment approach (claim 4) of this invention Since the step which acquires said **-JI information contains the step which acquires **-JI information from a computer in claim 1, The data outputted with image formation equipment by conventional computer which executes programs, such as a WORD processing program, a data **-SU program, a spreadsheet program, and an accounting program It can create and ******-JI detection and discernment can be similarly performed to the data created by computer.

[0101] Moreover, in claim 1, since the step which acquires said **-JI information contains the step which acquires **-JI information by scanning **-JI, the ******-JI detection / discernment approach (claim 5) of this invention can perform ******-JI detection and discernment similarly in various kinds of equipments equipped with a scanner.

[0102] Moreover, since the ******-JI detection / discernment approach (claim 6) of this invention has the step which inputs said ******-JI threshold by the user further in claim 1, its convenience of a user improves. For example, desired actuation can be performed by setting said ******-JI threshold as 2 (equivalent to two ******-JI), without making a head stop with equipment also in the case of the manuscript which set up two blank paper pages.

[0103] Moreover, ******-JI detection / discernment system (claim 7) of this invention In ******-JI detection / discernment system which detects and identifies the blank paper page of the manuscript in image formation equipments, such as an ARONAGU copying machine and a digital copier A means to judge the beginning of a job, and a means to acquire the **-JI information included in said job, A means by which **-JI shown using said **-JI information judges ******-JI or a banner page, A means to generate an OVERRIDE signal if said banner page is detected, A means to increment a ******-JI counter if it is judged that said **-JI is ******-JI, Since it had a means to indicate that the error occurred when a means to compare said ******-JI counter with a ******-JI threshold, and ******-JI were detected and an OVERRIDE signal did not occur, The playback job unsuitably put on the automatic manuscript feed gear (The blank paper page of two or more beginnings which can be set to a playback job) is detected, and while it is possible to stop it moreover, about ******-JI which is contained in the middle of a playback job, it can usually print out in a passage, without stopping a machine.

[0104] Moreover, when image formation equipment is digital image formation equipment, in order to detect whether it is original ******-JI in a job, the digital signal currently used with digital image formation equipment can be used.

[0105] Furthermore, it is easily applicable to an analog copying machine by equipping an automatic manuscript feed gear with the sensor which creates the digital signal used for detection and discernment of various kinds of ******-JI in a playback job.

[0106] Moreover, blank paper page detection / discernment system (claim 8) of this invention Since it had a means to make an automatic manuscript feed gear stop when it was further judged in claim 7 that said ******-JI counter is over said ******-JI threshold with said comparison means, The playback job (blank paper page of two or more beginnings which can be set to a playback job) unsuitably put on the automatic manuscript feed gear can be detected, and it can be stopped automatically.

[0107] Moreover, blank paper page detection / discernment system (claim 9) of this invention Since it had a means to make a printer stop when it was further judged in claim 7 that said ******-JI counter is over said ******-JI threshold with said comparison means, The playback job (blank paper page of two or more beginnings which can be set to a playback job) unsuitably put on the automatic manuscript feed

gear can be detected, and the print of the page which corresponds automatically can be stopped.

[0108] Moreover, blank paper page detection / discernment system (claim 10) of this invention Since a means to acquire said **-JI information includes a means to acquire **-JI information from a computer, in claim 7, The data outputted with image formation equipment by conventional computer which executes programs, such as a WORD processing program, a data **-SU program, a spreadsheet program, and an accounting program It can create and ******-JI detection and discernment can be similarly performed to the data created by computer.

[0109] Moreover, in claim 7, since a means to acquire said **-JI information includes a means to acquire **-JI information by scanning **-JI, blank paper page detection / discernment system (claim 11) of this invention can perform ******-JI detection and discernment similarly in various kinds of equipments equipped with a scanner.

[0110] Moreover, in claim 7, since blank paper page detection / discernment system (claim 12) of this invention is further equipped with a means to input a ******-JI threshold by the user, its convenience of a user improves. For example, desired actuation can be performed by setting said ******-JI threshold as 2 (equivalent to two ******-JI), without making a head stop with equipment also in the case of the manuscript which set up two blank paper pages.

[0111] Moreover, blank paper page detection / discernment system (claim 13) of this invention In blank paper page detection / discernment system which detects and identifies the blank paper page of the manuscript in image formation equipments, such as an ARONAGU copying machine and a digital copier A means to judge the beginning of a job, and a means to acquire the **-JI information included in a job, A means by which **-JI shown using said **-JI information judges ******-JI or a banner page, Since it had a means to indicate that the error occurred when said banner page was detected, a means to generate an OVERRIDE signal, and ******-JI were detected and an OVERRIDE signal did not occur, The playback job unsuitably put on the automatic manuscript feed gear (The blank paper page of two or more beginnings which can be set to a playback job) is detected, and while it is possible to stop it moreover, about ******-JI which is contained in the middle of a playback job, it can usually print out in a passage, without stopping a machine.

[0112] Moreover, the print system (claim 14) of this invention A means to judge it to be the information input terminal which receives the **-JI information on a print job whether said **-JI information contains ******-JI which plurality followed at the time of the start of said print job, At the time of the printer which prints said **-JI information, and the start of said print job, with said decision means When said **-JI information is judged that ******-JI which plurality followed is included After it makes said printer stop printing of **-JI information and said print job starts, with said decision means When said page information is judged that two or more ******-JI is included Since it had the controller operated without making said printer stop, The playback job unsuitably put on the automatic manuscript feed gear (The blank paper page of two or more beginnings which can be set to a playback job) is detected, and while it is possible to stop it moreover, about ******-JI which is contained in the middle of a playback job, it can usually print out in a passage, without stopping a machine.

[0113] Moreover, in claim 14, it connects with said information input terminal further, and since the print system (claim 15) of this invention was equipped with the scanner which creates said **-JI information, it can aim at improvement in convenience.

[0114] Moreover, in claim 14, it connects with said information input terminal further, and since the print system (claim 16) of this invention was equipped with the computer which creates said **-JI information, it can perform ******-JI detection and discernment similarly to the data created by computer which executes programs, such as a WORD processing program, a data **-SU program, a spreadsheet program, and an accounting program.

[0115] Moreover, the print system (claim 17) of this invention A means by which said decision means judges the beginning of said print job in claim 14, A means by which **-JI shown using said **-JI information judges whether it is ******-JI, A means to judge what said print job started when it is judged that said **-JI is not a blank paper, A means to increment a ******-JI counter when it is judged that said **-JI is ******-JI, With a means to compare said ******-JI counter with a ******-JI

threshold, and said comparison means Since it has a means to indicate that the error occurred when it is judged that said ******-JI counter is over said ******-JI threshold and it is judged that said print job has not started, The playback job unsuitably put on the automatic manuscript feed gear (The blank paper page of two or more beginnings which can be set to a playback job) is detected, and while it is possible to stop it moreover, about ******-JI which is contained in the middle of a playback job, it can usually print out in a passage, without stopping a machine.

[0116] Moreover, in claim 14, since the print system (claim 18) of this invention was equipped with the photo conductor which receives the light from said laser which said printer reflected in laser, the polygon mirror, and said polygon mirror, it can treat digital data as data to print.

[0117] Moreover, the facsimile apparatus (claim 19) of this invention A means to judge it to be the scanner which creates **-JI information from a scanning job whether said **-JI information contains ******-JI which plurality followed at the time of the start of said scanning job, At the time of the transmitter which transmits said **-JI information, and the start of said scanning job, with said decision means When it is judged that ******-JI by which plurality followed said **-JI information is contained After it makes said transmitter stop transmission of **-JI information and said scanning job starts, with said decision means When ******-JI by which plurality followed said **-JI information is contained Since it had the controller which operates without making said transmitter stop, The playback job unsuitably put on the automatic manuscript feed gear (The blank paper page of two or more beginnings which can be set to a playback job) is detected, and while it is possible to stop it moreover, about ******-JI which is contained in the middle of a playback job, facsimile transmission can usually be carried out at a passage, without stopping a machine.

[0118] Moreover, the facsimile apparatus (claim 20) of this invention A means by which said decision means judges the beginning of said scanning job in claim 19, A means by which **-JI shown using said **-JI information judges whether it is ******-JI, A means to judge what said scanning job started when it is judged that said **-JI is not a blank paper, A means to increment a ******-JI counter when it is judged that said **-JI is ******-JI, Said ******-JI counter with the means in comparison with a ******-JI threshold, and said comparison means Since it has a means to indicate that the error occurred when it is judged that said ******-JI counter is over said ******-JI threshold and it is judged that said scanning job has not started, The playback job unsuitably put on the automatic manuscript feed gear (The blank paper page of two or more beginnings which can be set to a playback job) is detected, and while it is possible to stop it moreover, about ******-JI which is contained in the middle of a playback job, facsimile transmission can usually be carried out at a passage, without stopping a machine.

[0119] Moreover, the computer program product (claim 21) of this invention In the computer program product which has equipment with which computer program logic is recorded, and which can be computer read A means to judge the beginning of said job, and a means by which **-JI shown using said **-JI information judges whether it is ******-JI, A means to judge that said job has started when it is judged that said **-JI is not ******-JI, A means to increment a ******-JI counter if it is judged that said **-JI is ******-JI, Said ******-JI counter with the means in comparison with a ******-JI threshold, and said comparison means A means to judge that ******-JI which plurality followed exists when it is judged that said ******-JI counter is over said ******-JI threshold and it is judged that said job has not started, In order to judge whether the **-JI information on a job contains ******-JI which plurality followed at the time of the start of a preparation and said job, While it is possible to detect the playback job (blank paper page of two or more beginnings which can be set to a playback job) unsuitably put on the automatic manuscript feed gear in various kinds of image formation equipments, and to stop it moreover, about ******-JI which is contained in the middle of a playback job a machine It can be made to usually operate to a passage, without stopping.

[0120] Moreover, the image formation equipment which has a scanner, a control device, plotting facilities, and detection equipment for the ******-JI detection / discernment approach of this invention, blank paper page detection / discernment system, the print system using it, the facsimile apparatus using it, and the computer program product (claim 1 thru/or 21) using it to identify and detect ******-JI of the first sheet and ******-JI after it in a playback job can be offered.

[Translation done.]